UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Inspection Date(s):	October 17-18, 2018
Regulatory Program(s):	SIP, NSPS
Company name:	Hilcorp Energy Company
Facility Name:	Central Production Facilities: Mahoning-Siegel, Mahoning-Buckner, Pulaski-Carlisle, Pulaski-Whiting, Jefferson-Montgomery, North Beaver-NCD, Lackawannock-Larmon, and Shenango-Radkowski
Facility Physical Location:	See Attachment 1 for details
Mailing Address:	PO Box 61229 Houston, TX 77208-1229
County/Parish:	Lawrence and Mercer County, PA
Facility Contact:	Cory Johnson [HYPERLINK "mailto:cjohnson@hilcorp.com"], (713) 289-2691
Permit Number:	See Attachment 1 for details
NAICS:	211111 for Crude Petroleum and Natural Gas Extraction
SIC:	1311 for Crude Petroleum and Natural Gas

Attendees:

Facility Representatives:

Cory Johnson, Environmental Specialist, (713) 289-2691
Brett Bunker

EPA Inspectors:

Cary Secrest, US EPA Headquarters, 2242A, (202) 564-8661
James Riggs, US EPA Region III, 3AP20, (215) 814-2238

State Inspector(s):

Marilyn Blystone, PADEP, (724) 656-3164
Kyle Lewarchik, PADEP, (724) 656-3160

EPA Lead Inspector Signature/Date	**Cary Secrest**	**Date**
EPA Inspector Signature/Date	**James Riggs**	**Date**
Supervisor Signature/Date	**Amelie Isin**	**Date**

I. Introduction

The Environmental Protection Agency (EPA) targeted eight (8) Hilcorp Energy Company (Hilcorp) central processing facilities for a full compliance evaluation of the Clean Air Act (CAA) and to verify compliance with permitting requirements and applicable State and Federal regulations. The Pennsylvania Department of Environmental Protection (PADEP) was notified of the inspection and sent two inspectors to accompany EPA. On October 11, 2018, the EPA notified Stephanie McMurray of Hilcorp by phone and email of the CAA inspection to be conducted on October 17-18, 2018. This email is included as attachment 2 in this report.

A. Summary of the Facility-

Hilcorp is a privately held company with headquarters in Houston, TX and began operations in 1989. At the time of the inspection, Hilcorp owns and operates eight (8) central processing facilities in Mercer and Lawrence county, PA. These central processing facilities receive process water, condensate, and natural gas from surrounding well pads. The natural gas is pressurized and sent offsite via a sales line, while the condensate and process water are stored onsite in above ground storage tanks.

EPA visited the Mahoning - Siegel, Mahoning - Buckner, Pulaski - Carlisle, Pulaski - Whiting, Jefferson - Montgomery, North Beaver - NCD, Lackawannock - Larmon, and the Shenango - Radkowski Central Processing Facilities. Each well pad is owned and operated by Hilcorp and is located in either Mercer or Lawrence County, PA. These sites were selected for inspection because they produce and/or store natural gas liquid condensate on site. The wells at these sites were horizontally drilled and hydraulically fractured to extract natural gas from underlying shale gas plays. Hilcorp operates these well pads under the North American Industrial Classification System code 21111 for crude petroleum and natural gas extraction.

The North Beaver – NCD and Mahoning-Buckner sites have met the requirements of the Pennsylvania Category No. 38 Exemption and therefore do not have state issued operating permits. The remaining six (6) facilities are issued GP-5 permits by PADEP. These permits are designed to reduce the amount of time it takes to permit a facility by establishing general regulatory language for an industry. The GP-5 permits incorporate the requirements of the following Federal Regulations:

- 40 CFR Part 60, Subpart KKK – Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants for Constructions, Reconstruction, or Modification Commenced After January 20, 1984, and On or Before August 23, 2011
- 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
- 40 CFR Part 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines

- 40 CFR Part 60, Subpart OOOO – Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced...August 23, 2011, and on or before September 18, 2015
- 40 CFR Part 60, Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015.
- 40 CFR Part 63, Subpart HH – National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities
- 40 CFR Part 63, Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

In addition, the GP-5 permit sets emission limits from all sources and associated air pollution control equipment to not equal or exceed either of the following on a 12-month rolling sum basis:

- NOx – 100 tons
- CO – 100 tons
- SOx – 100 tons
- PM10 – 100 tons
- PM2.5 – 100 tons
- VOCs – 50 tons
- Any individual HAP – 10 tons
- Total HAPs – 25 tons

B. Inspection Opening Conference-

EPA Region III inspector James Riggs and EPA Office of Enforcement and Compliance Assurance inspector Cary Secrest met with Hilcorp representatives at approximately 08:45 on October 17, 2018 at the Hilcorp office at 596 North Gate Circle, New Castle, PA 16105 for an announced inspection of central processing facilities in Mercer and Lawrence County, PA. Inspectors met with Brett Bunker and Cory Johnson, Environmental Specialist, of Hilcorp. Marilyn Blystone of the Pennsylvania Department of Environmental Protection was also in attendance. EPA inspectors explained that Hilcorp was targeted for inspection as part of a national enforcement initiative looking into energy extraction operations as well as excess emissions from tanks. EPA inspectors further explained that any information gathered during the inspections would be treated as confidential business information (CBI) in accordance to EPA's CBI policy, but only if Hilcorp made a claim of CBI. Hilcorp did not claim any information as CBI during the opening conference. EPA inspectors explained that they would be using a FLIR optical gas imaging camera to look for any leaking components and to determine if flares were combusting efficiently. An Ion Science PhoCheck Tiger Photo Ionization Detector (PID) – serial number T-106050 – was brought as well to verify and quantify any observed leaks.

As per the requirements of Exemption 38 and the GP-5 permits, Hilcorp conducts annual and quarterly LDAR monitoring using an approved optical gas imaging camera. This approved

LDAR program is performed by a contract with Scott Hibbeler of HIMARC Environmental Solutions, LLC.

The inspection team ended the opening conference and left the office for the first facility at 09:23.

II. Process Overview

The wells at the Shenango – Radkowski, North Beaver – NCD and Mahoning Buckner sites were horizontally drilled and hydraulically fractured in order to extract natural gas and condensate from either the Marcellus or Utica shale play. The well stream travels from the well head to a three-phase separator. These units use gravity and density differences to separate condensate, natural gas, and process water. Condensate and process water are sent to above ground storage tanks at this point. Further moisture is removed from the gas stream at a glycol dehydrator. Emissions from the glycol dehydrators are controlled by the flare. Tank emissions – mainly VOCs – are collected from each tank via a shared header line and vented to the flare for destruction. Hilcorp is required to operate the flares at 98% efficiency. The shared header line on the tanks has a pressure relief valve (PRV) to prevent unsafe pressure conditions in associated piping and the tanks. The PRV is set to 16 ounces per square inch. Each tank also has a thief hatch used for sampling tank contents and to prevent unsafe pressure conditions in the tanks.

The remaining five (5) facilities do not have wells drilled on them. Instead, they receive well streams from other well pads owned by Hilcorp. The high pressure (HP) receiving line header brings in higher pressure streams from off site. The HP well stream is sent through a three-phase separator (process water and condensate go to tanks), a line heater to increase the temperature of the material in the line, a filter separator to remove larger particles, and finally through a glycol dehydration unit to remove excess moisture. The HP gas leaves the sites via a sales line. There are separate receiving headers for lower pressure (LP) gas lines as well. The LP gas stream goes through the same process as the HP line before exiting the site, the only difference being that there are compressors on site to increase the line pressure before sending it off site via the sales line. Emissions from each of these process units are directed to the flare for destruction.

III. Plant Tour/Walkthrough

North Beaver – NCD Central Processing Facility:

At 09:44 on October 17, 2018, the inspection team arrived at the North Beaver – NCD Central Processing Facility. This facility is located at 3273 Howard Drive, New Castle, Pennsylvania and includes four (4) wells, all of which were producing during the inspection. The candlestick style flare on site was in operation, the flame of which was approximately fifteen to twenty feet long. The flame was giving off too much radiant heat to be able to image any VOC trail with the FLIR camera. However, Mr. Secrest noted that the flame seemed to be a good orange color and there was little visible soot build up on the flare itself. These are both indications of a healthy running flare. The well heads were equipped with sand separators which are used to remove sand particles and other solids from the well stream fluid prior to processing at the GPU's. No leaks were observed at the well heads. The inspection team did observe

emissions from a Fisher Controller pneumatic valve associated with the three-phase separator GPU. However, these valves are designed to release small puffs of methane gas to maintain safe pressure conditions within the associated piping. No other leaks were observed on the GPU's or glycol dehydrator. There is one (1) process water and one (1) condensate tank on site. One (1) leak was observed with the FLIR from the pressure relief valve on the tanks. The tanks were roughly one-fifth full. No other leaks were observed at this facility. The inspection team left the North Beaver – NCD Central Processing Facility at 10:58.

Mahoning – Buckner Central Facility:

At 11:07 on October 17, 2018, the inspection team arrived at the Mahoning – Buckner Central Facility. This facility is located at 1013 Skyhill Rd, Edinburg, Pennsylvania and includes one (1) well which was producing during the inspection. No leaks were observed at the well head. No leaks were observed on the compressor or on the glycol dehydrator. The vapor trail from the flare extended approximately 10 feet from the flame before dissipating. There are two (2) 400 BBL storage tanks on site, one each for process water and oil. The water tank was about four (4) feet full and the oil tank was about three (3) feet full. One leak was observed from the thief hatch on the water tank. The PID measured the leak as approximately 12 ppm. No other leaks were observed on the tanks. The inspection team left the Mahoning – Buckner Central Facility at 11:47 and broke for lunch.

Shenango – Radkowski Central Facility:

At 12:57 on October 17, 2018, the inspection team arrived at the Shenango – Radkowski Central Facility. This facility is located at 201 Pulaski Road, Pulaski, Pennsylvania and includes eight (8) wells, all of which were producing during the inspection. A glycol dehydrator was observed on site, but it was not in use or hooked up during the inspection. The flare was not in operation during the inspection, but the pilot light was on. No substantial leaks were detected at the well heads, tanks, GPU's or any of the associated piping. The tanks levels were low, with a couple of them being empty. The inspection team left the Shenango – Radkowski Central Facility at 13:42.

Pulaski - Carlisle Central Facility:

At around 14:00 on October 17, 2018, the inspection team arrived at the Pulaski - Carlisle Central Facility. This facility is located at 1305 State Route 208, Pulaski, Pennsylvania. There are no wells at this site. There are 12 tanks at this site, six (6) of which are process water tanks and six (6) are for condensate. Most of the tanks are about one fifth full. Emissions from the tank PRV were observed and filmed with the FLIR camera. Verification with the PID showed leaks from the tank thief hatches as high as 360 ppm. The #4 water tank had the highest reading with the PID. No leaks were observed at the high pressure receiving line, low pressure receiving line, the separators, glycol dehydrators, or at the compressors. The inspection team left the Pulaski – Carlisle Central Facility at 15:00. Ms. Blystone left for the day after the inspection team concluded at this site.

Pulaski – Whiting Central Facility:

At 15:05 on October 17, 2018, the inspection team arrived at the Pulaski-Whiting Central Facility. This facility is located at 7510 State Road 551, Edinburg, Pennsylvania. There are no wells at this site. There are 18 tanks at this facility. No leaks were observed at the high pressure receiving line, low pressure receiving line, the separators, glycol dehydrators, or at the tanks. There was one (1) leak observed on compressor #1 (southernmost compressor) with a concentration of approximately 29 ppm. The emissions appeared to be originating from an oil catch pan beneath the compressor. The inspection team had safety concerns about this leak due to the confined nature of the source. Hilcorp was notified about this concern. No VOC trail was observed from the flare. The inspection team left the Pulaski-Whiting Central Facility at 16:00 and ended for the day.

Mr. Lewarchik of PADEP joined EPA inspectors for the second day of field activities at Hilcorp's facilities. Ms. Blystone also returned to observe the inspection.

Jefferson-Montgomery Central Facility:

At 10:00 on October 18, 2018, the inspection team arrived at the Jefferson-Montgomery Central Facility. This facility is located at 135 Steister Rd., Mercer, Pennsylvania. One (1) leak was observed on a valve associated with the low-pressure gas separator piping. The PID reading for this leak was approximately 29 ppm. There are six (6) tanks at this facility, three (3) are for process water and three (3) are for condensate. Most of the tanks were empty while some were one fifth full. No leaks were observed at the high pressure receiving line, low pressure receiving line, the high-pressure separator, glycol dehydrator, or on the tanks. There was no VOC vapor trail observed at the flare. The inspection team left the Jefferson-Montgomery Central Facility at 11:06.

Lackawannock - Larmon Central Facility:

At 11:24 on October 18, 2018, the inspection team arrived at the Lackawannock – Larmon Central Facility. This facility is located at 1840 Mercer-West Middlesex Rd., Mercer, Pennsylvania. Two (2) leaks were observed on the high pressure. One (1) on a barrel plug which had a PID reading of approximately 49 ppm and one (1) from a pipe couple with a PID reading of approximately 11 ppm. The second leak had already been tagged for repair by Hilcorp representatives. There were no other leaks observed at the HP receiving line header. There were three (3) leaks observed at the compressors on site. One (1) was observed on a Jatco pot set up next to compressor #1. One (1) was observed from the piping associated with compressor #1. This leak was measured to be approximately 38 ppm. The third leak was observed on the piping associated with compressor #2. This leak was measured to be approximately 30 ppm. No other leaks were observed at the compressors. There was one (1) leak observed on a valve associated with the vapor recovery tower on site. The PID reading for this leak was approximately 34 ppm. There are twelve (12) tanks at this site and while there were no leaks observed from the PRV, there was a leak observed from the thief hatch on oil tank #5. The PID reading for this leak was approximately 150 ppm. The inspection team informed Hilcorp of this leak. No leaks were

observed at the low pressure receiving line header, either of the separators, or the glycol dehydrators. There was no VOC vapor trail observed at the flare. The inspection team left the Lackawannock - Larmon Central Facility at 12:45 and broke for lunch.

Mahoning – Siegel Central Production Facility:

At 14:20, the inspection team arrived at the Mahoning – Siegel Central Production Facility. This facility is located at 326 Baird Road, Edinburg, Pennsylvania. One (1) leak was observed in a fuel gas line valve. There are three compressors at this facility. One (1) leak was observed at each compressor. The leak on compressor #1 was visible in visible light as well as with the FLIR camera. According to Hilcorp, there had been a recent fire at this compressor and some of the piping used for blow down was damaged. The PID reading for this leak was approximately 56 ppm. The second leak was observed on the piping associated with compressor #2. The PID reading for this leak was approximately 23 ppm. The third and final leak observed at the compressors was observed on the piping associated with compressor #3. The PID reading for this leak was approximately 23 ppm as well. There are twelve (12) tanks at this site. During the inspection, it was observed that the PRV was not leaking but that there were significant emissions coming from the thief hatches. The PID readings showed that the #1,2, and 3 oil tanks and the #1 slop tank thief hatches were all leaking at approximately 150 ppm. The #5 water tank thief hatch was leaking at approximately 300 ppm. No leaks were observed at the low pressure receiving line header, the high pressure receiving line header, either of the separators, or the glycol dehydrators. There was no VOC vapor trail observed at the flare. The inspection team left the Mahoning – Siegel Central Production Facility at 15:45 and headed back to the Hilcorp offices for a closing conference.

IV. Records Review

No records were reviewed during the inspection; however, EPA did request the LDAR monitoring records for the previous four quarters as well as site maps for each inspected facility. These records have been received at the time of this report.

V. Closing Conference

The closing conference took place at 16:05 on October 18, 2018 at the Hilcorp office in New Castle. In attendance were James Riggs, Cary Secrest, Brett Bunker, Marilyn Blystone, and Kyle Lewarchik. EPA inspectors covered EPA's CBI policy again and asked if Hilcorp would like to claim any information as such. Hilcorp did not make a claim of CBI at the time of the closing conference. EPA also described any areas of concern identified during the inspection as well as any leaks that were observed using the FLIR camera. Finally, EPA thanked the company for their time and left the facility at 16:15.

VI. Areas of Concern

The following have been identified as potential issues identified during the inspection. They are issues that require either further investigation by EPA or additional information or explanation

by Hilcorp. Any additional information concerning these areas provided by Hilcorp would become useful in determining the extant of any future actions by EPA.

- North Beaver-NCDC – one (1) leak from tank PRV
- Mahoning-Buckner – one (1) leak from water tank thief hatch
- Pulaski-Carlisle – one (1) leak from tank PRV
- Pulaski-Whiting – one (1) leak from compressor
- Jefferson - Montgomery – one (1) leak from low pressure gas line
- Lackawannock-Larmon – six (6) leaks (one each) from:
  - Barrel plug on high pressure line
  - Pipe coupler on high pressure line
  - Compressor Jatco Pot
  - Compressor 1 piping
  - Compressor 2 piping
  - Vapor Recovery Tower valve
  - #5 Oil tank thief hatch
- Mahoning-Seigel – five (5) leaks (one each) from:
  - Fuel gas line piping
  - Compressor 1 piping
  - Compressor 2 piping
  - Compressor 3 piping
  - Thief hatches on all tanks

VII. List of Attachments

Attachment 1: Hilcorp PA Central Facility Addresses
Attachment 2: Email correspondence to Stephanie McMurray of inspection notification
Attachment 3: Photo/Video Log with Index